
Overview

This standard is concerned with carrying out condition based maintenance and planned repair activities of optical fibre cable transmission cables to ensure network availability and high-quality network transmission. It involves carrying out planned maintenance testing and repairs and carrying out condition based maintenance of equipment deployed at points of presence (POP)s.

Performance criteria

You must be able to:

1. Review the maintenance plan to assess maintenance tasks to be undertaken
2. Organise all required optical test tools, including optical time-domain reflectometer (OTDR), power meter and light meter, and check that they are in working order and calibrated to manufacturer's specifications
3. Plan patrolling and surveillance of the optical fibre cable route to meet the maintenance plan
4. Undertake optical fibre cable testing using approved test methods
5. Evaluate the test results to assess the functionality of the optical component or equipment and the performance of the optical system
6. Analyse test results to develop route strengthening work plans and identify areas for repair
7. Liaise with the Network Operating Centre (NOC) prior to undertaking planned repair activities to obtain a time block for carrying out the repair activity
8. Organise all required equipment for optical fibre repairs, including joint closure, connectors, splicers and cleavers
9. Carry out planned repair activities within defined timelines and service level agreements (SLAs)
10. Report any third party elements that require maintenance or repair following organisational procedures
11. Carry out tests to confirm the effectiveness of the planned repairs
12. Record all work undertaken and test results to organisational standards

Knowledge and understanding

You need to know and understand:

1. The principles of optical transport media and optical fibre cable communication
2. Optical fibre characteristics including refraction, polarization, attenuation and dispersion
3. The different wavelength bands used for optical communication and their usability and transmission loss characteristics
4. The typical design values and margins for optical transmission signal strength and quality
5. The functionality of industry standard optical equipment including; cleaver, mechanical and fusion splicing kit, protection sleeves, fibre stripper, fibre reinforced plaster, jointing
6. The functionality of optical test equipment including optical time-domain reflectometer (OTDR), power meter and light meter
7. The expected optimal values for OTDR, power meter and light meter test results
8. The need to earth telecoms equipment
9. How to maintain the earth for telecoms equipment
10. The standard trenching, optical fibre cable laying, splicing, jointing, blowing and back-filling process for installation of optical fibre cables
11. The different types of optical fibre connectors that can be used and their limitations
12. The different fibre termination methods and how to apply them

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Undertake maintenance & planned repairs to optical fibre cables



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